

B. Cofferdams Not Measured for Separate Payment.

The cost of cofferdams not measured for separate payment will be included in the Contract Price for bridge excavation.

If lowering a footing requires lowering a cofferdam not measured for separate payment, the compensation for extra depth excavation provided for in Subsection 211.5.A, “Bridge Excavation”, will be full compensation for the cost of lowering the cofferdam.

Payment for cofferdams eligible for separate measurement will be made under the following:

Item No. 525	Cofferdams	Per each
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525.5.01 Adjustments**A. Partial Payment Adjustments**

Partial payment for measured cofferdams will be made as follows:

1. After a satisfactory initial dewatering of the cofferdam, 75 percent of the Contract Price per cofferdam will be included in the next statement.
2. The remaining 25 percent will be included in the next statement after the satisfactory removal and disposal of the cofferdam.

B. Extra Work Qualifications

When the excavation elevation reaches 6 ft (2 m) below the Plan elevation and the cofferdam is satisfactory (as determined by the Engineer) for dewatering to that elevation, then any lowering of the cofferdam to permit construction at an elevation more than 6 ft (2 m) below Plan elevation will be considered Extra Work.

Section 528—Epoxy Pressure Injection of Concrete Cracks**528.1 General Description**

This work consists of labor, material, equipment, and services necessary for repairing concrete cracks. The Plans will specify or the Engineer will determine the extent of repair. The work shall comply with the Specifications including Special Provisions where applicable.

528.1.01 Definitions

General Provisions 101 through 150.

528.1.02 Related References**A. Standard Specifications**

Section 886—Epoxy Resin Adhesives

B. Referenced Documents

General Provisions 101 through 150.

528.1.03 Submittals

General Provisions 101 through 150.

528.2 Materials

Ensure epoxy used for crack repair complies with the requirements of Section 886, Type V epoxy adhesive.

Ensure epoxy used for sealing cracks at the surface is strong enough to withstand injection pressures up to 250 psi (2 MPa).

528.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

528.3 Construction Requirements

528.3.01 Personnel

General Provisions 101 through 150.

528.3.02 Equipment

A. Injection Equipment

Ensure that dispensing equipment for the injection complies with the following performance requirements:

- Self-monitor pressures of 250 psi (2 MPa) for extended periods under flow.
- Maintain a ratio of accuracy of one percent at the required pressures.
- Mix in-line using a static mixing head.

When using screen wire, wire brushes, or other elements for mixing, provide independent certification that the material is mixing thoroughly at the flow rate and temperatures for the job. Also demonstrate that the unit will not dispense resin if the material line is blocked on the supply or dispense side of the system.

528.3.03 Preparation

Before repairing the cracks specified on the Plans, prepare the concrete surfaces next to the cracks by exposing clean and sound concrete.

The exact procedures for exposing clean and sound concrete shall be the Contractor's option and responsibility. However, the procedures must comply with any traffic handling and construction sequencing requirements for the Project.

528.3.04 Fabrication

General Provisions 101 through 150.

528.3.05 Construction

Seal concrete cracks as follows:

1. After preparing the concrete surfaces, seal the cracks at the surface with epoxy.
Port spacing, location, and port type shall be the Contractor's option and responsibility.
2. If the voids are not thoroughly penetrated, use the following procedure:
 - a. Wet core on 8 in (200 mm) centers the holes that are 1/2 in (13 mm) diameter and 3/4 in (19 mm) to 1 in (25 mm) depth.
 - b. Insert into the cored holes to the full depth copper or plastic tubes 1/2 in (13 mm) diameter and notched at the base.
 - c. Seal the circumference of the ports at the surface.
 - d. Inject the epoxy at a constant pressure not to exceed 250 psi (2 MPa) for at least 10 minutes or until penetration occurs.
3. After the injection operation is complete, clean the sealed cracks to the original concrete surface.
4. Remove nipple devices and surface sealers over the injection holes.

528.3.06 Quality Acceptance

General Provisions 101 through 150.

528.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

528.4 Measurement

No measurement for payment will be made for any material, equipment, or labor necessary to accomplish this Work.

528.4.01 Limits

General Provisions 101 through 150.

528.5 Payment

All costs for material, equipment, or labor shall be included in the Lump Sum price bid for Epoxy Pressure Injection of Concrete Cracks.

Payment will be made under

Item No. 528	Epoxy Pressure Injection of Concrete Cracks, Bridge No. ____	Per lump sum
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528.5.01 Adjustments

General Provisions 101 through 150.

Section 529—Navigation Lighting

529.1 General Description

This work consists of furnishing and installing navigation lighting (complete or to the extent indicated on the Plans) on bridges and on fender systems where required on the Plans and approved Shop and Work Drawings.

The Specification's intent is to secure a complete, operational system according to the National Electrical Code and applicable local ordinances.

529.1.01 Definitions

Qualified Electrician: A journeyman electrician with one of the two following classifications:

- Has a Class II license issued by the Georgia State Construction Industry Licensing Board
- Has completed an approved four-year apprenticeship training program

529.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 645—Repair of Galvanized Coatings

Section 852—Miscellaneous Steel Materials

Section 863—Preservative Treatment of Timber Products

Section 921—Luminaries

Section 922—Electric Wire and Cable

Section 923—Electrical Conduit

Section 924—Miscellaneous Electrical Materials

B. Referenced Documents

National Electrical Code

ASTM A 123/A 123M

529.1.03 Submittals

A. Contractor Qualifications

The Contractor performing this work must be on the Department's list of approved electrical contractors or electrical subcontractors.

B. Product Lists

To avoid misunderstanding and ensure compliance with the Specifications, submit to the Engineer for approval a complete list of the products proposed for use before purchasing materials or equipment. Products must comply with Plan requirements to be approved.

The product list shall include the following information:

- Manufacturer's name for each item
- Manufacturer's catalog number for each item

Where the Engineer deems necessary, alternate equipment will be specified.

C. Fees and Permits

Pay the fees and obtain the permits required by power companies and governmental agencies.